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EXAMINER				
LEE, BENJAMIN P				
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05/20/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/577,996

**Applicant(s)**

HERMANS ET AL.

**Examiner**

BENJAMIN P. LEE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

1. Applicant has amended claims 8, 9, 11 and 12 and added new claims 13-15.

### ***Response to Arguments***

2. Applicant's arguments filed 1/16/2008 have been fully considered but they are not persuasive. Applicant argues that GOERZ as modified fails to teach that the wire mesh and fabric are connected. Examiner respectfully disagrees and asserts that the two materials are taught by GOERZ to be in contact and are inherently connected. Applicant is advised that the context of the term "connected" does not imply that the items are directly attached to each other. Applicant further argues that since GOERZ teaches against the use of a non-woven material, it would not have been obvious to combine the teachings of GOERZ and NOMURA. Examiner respectfully disagrees and asserts that GOERZ teaches the addition of multiple layers including supplemental fibers and deflection layers which consist of non-woven material and the combination of NOMURA with GOERZ teaches that it would have been obvious to include any of various fiber configurations including non-woven as a supplemental layer of fabric. Applicant is respectfully reminded that knitted fabrics, as taught by GOERZ, are not necessarily woven by definition, since knitting involves interlocking loops of fibers and woven materials include interlaced stands of fibers. Examiner regrets unintentionally omitting a reference to claim 12 in the prior office action. However, claim 12 fails to include any additional structure other than the structure of claim 1 and is a substantial

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duplicate of claim 1. Further, claim 1 has reasonably been interpreted to include the protective textile product, since elements of the protective textile product are positively recited in claim 1

***Priority***

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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4. Claims 1, 9, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goerz et al. (U.S. Patent 5472769) in view of Nomura et al. (U.S. Patent 7235285).

5. In regards to claims 1 and 12, Goerz et al disclose a stab-resistant insert for protective textile (col. 1, lines 65-67 and col. 2, lines 1-23), said insert comprising the following:

at least one metal layer of a fabric with metal cords or metal wires (col. 4, lines 49-55 and Goerz et al fig. 5 following);

at least one textile layer (col. 3, lines 58-67);

said textile layer being in contact with and being connected to said metal layer (Goerz et al fig. 9 following). Note that the metal mesh is taught to be an embodiment of item 37;

Goerz et al fail to teach that the textile layer comprises a non-woven material.

However, Nomura et al teaches a layer of non-woven fabrics of polyethylene fibers (col. 1, lines 14-22 and col. 9, lines 16-22) in an armor assembly. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize a fabric layer of non-woven fibers as taught by Nomura et al with the apparatus of Goerz et al, to provide an improved projectile-trapping capability.

6. In regards to claim 9, Nomura et al disclose that the non-woven material comprises synthetic fibers.

7. In regards to claim 10, Nomura et al disclose that more than thirty percent of said synthetic fibers are high-density high-molecular weight polyethylene fibers (col. 3, lines 14-45).

8. Claim 2, 6, 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goerz et al. (U.S. Patent 5472769) and Nomura et al. (U.S. Patent 7235285) as applied to claim 1 above, and further in view of Andresen et al. (U.S. Patent 6581212).

9. In regards to claims 2, Goerz et al disclose that the fabric is comprised of metal cords or metal wires lying in parallel (see Goerz et al fig. 5 following). Goerz et al fail to teach that the distance between said metal cords or metal wires varies between 0.40 mm and 3.2 mm. However, Andresen et al disclose a wire mesh for a protective garment with spacing between the metal wires of between 0.05mm and 0.45mm (col. 6, lines 32-40). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize metal wire mesh with various distances between the wires including 0.05mm to 0.45mm as taught by Andresen et al, to provide a means to stop various size sharp objects from penetrating the garment.

10. In regards to claim 6, Goerz et al and Andresen et al teaches that at least one metal layer is multi-directional (see Goerz et al fig. 5 following and Andresen et al fig. 2 following).

11. In regards to claims 7 and 13, Goerz et al and Nomura et al fail to disclose that the non-woven textile material is bonded to said metal layer by means of an adhesive or by means of a thermoplastic film or by means of stitches. However, Andresen et al teaches using an adhesive to bond a fabric layer to a metal mesh protective layer (par. 45). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize any of various methods of bonding a fabric layer and metal layer together including and adhesive as taught by Andresen et al, since adhesives can provide superior flexibility and durability.

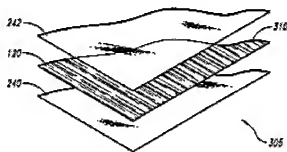
12. Claims 3-5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goerz et al. (U.S. Patent 5472769) and Nomura et al. (U.S. Patent 7235285) and Andresen et al. (U.S. Patent 6581212) as applied to claim 2 above, and further in view of Brillhart et al. (U.S. Patent 6562435).

13. In regards to claims 3 and 14, the modified Goerz et al fail to disclose that the metal layer comprises elongated metal elements that are unidirectional within said metal layer and wherein said elongated metal elements are bonded to said non-woven material by means of an adhesive or by means of a thermoplastic film. However, Brillhart et al teaches using thermoplastic sheets between individual layers in a ballistic resistant laminate to adhere the layers (col. 7, lines 30-33). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize a

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thermoplastic sheet to adhere individual layers together as taught by Brillhart et al with the modified Goerz et al apparatus, since the sticky properties of the film provide an ideal means of adhering layers.

Further, the Brillhart et al teaches deploying fibers in a parallel unidirectional orientation per layer (see Brillhart et al fig. 3 following). It is old and well known and would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to orient the reinforcing strands of the modified Goerz et al apparatus in a unidirectional manner per layer as taught by Brillhart et al, to provide maximum axial load strength per layer.



*Fig. 3*

Brillhart et al

14. In regards to claim 4, Goerz et al fail to explicitly disclose that the insert comprises more than one metal layer. However, Andresen et al teaches using multiple wire layers (col. 5, lines 58-62). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate more than one layer of wire as



taught by Andresen et al in the body armor of Goerz et al, to enhance the stopping capability of the garment.

15. In regards to claim 5, Andresen et al teaches that the elongated metal elements of one metal layer run in a different direction than the elongated metal elements of another layer (col. 5, lines 52-62 and Andresen figure 1 following). Note that Andresen teaches multiple layers and that each metal layer is comprised of metal elements running in at least two different directions. Therefore, the metal elements of one layer run in a different direction than the metal elements of another layer.

16. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goerz et al. (U.S. Patent 5472769) and Nomura et al. (U.S. Patent 7235285) and Andresen et al. (U.S. Patent 6581212) as applied to claim 2 above, and further in view of Toulmin, Jr. et al. (U.S. Patent 2758952).

17. In regards to claim 8, the modified Goerz et al fail to disclose that a part of said non-woven material penetrates between the elongated metal elements to decrease the likelihood of shifting the elongated metal elements in said metal layer. However, Toulmin, Jr. et al teaches a metal wire mesh with a mat of fibers overlying where some of the fibers extending through openings in the wire mesh (col. 9, lines 55-75). It would have been obvious to one ordinary skill in the art at the time of Applicant's invention to intertwine or penetrate the metal mesh layer with the fiber layer of the modified Goerz et

al as taught by Toulmin, Jr. et al, to increase the strength and impart a cohesive relationship between the layers.

18. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goerz et al. (U.S. Patent 5472769) and Nomura et al. (U.S. Patent 7235285) as applied to claim 1 above, and further in view of Price et al. (U.S. Patent 5724670).

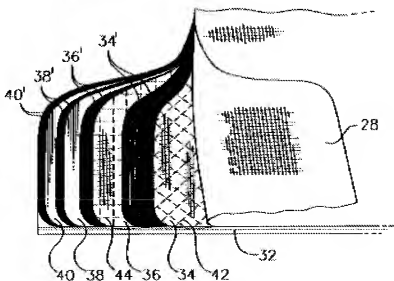
19. In regards to claim 11, the modified Goerz et al fail to explicitly teach that each metal layer is at both sides in contact with and is connected with a textile layer. However, Price et al teaches using multiple alternating sheets of ballistic resistant fabric with fiber reinforced layers in a ballistic laminate (see Price et al fig. 2 following). It is well known in the art and would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to incorporate multiple alternating layers of a ballistic resistant material as taught by Price et al in the flexible ballistic laminate of the modified Goerz et al, to increase the penetration resistance of the laminate;

Goerz et al fail to teach that the textile layer comprises a non-woven material. However, Nomura et al teaches a layer of non-woven fabrics of polyethylene fibers (col. 1, lines 14-22 and col. 9, lines 16-22) in an armor assembly. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize a fabric layer of non-woven fibers as taught by Nomura et al with the apparatus of Goerz et al, to provide an improved projectile-trapping capability.

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20. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goerz et al. (U.S. Patent 5472769) and Nomura et al. (U.S. Patent 7235285) as applied to claim 1 above, and further in view of Li et al. (U.S. Patent 5,591,933).

21. In regards to claim 15, GOERZ et al as modified fail to teach that the non-woven material is bonded to the metal layer by stitches. However, Li teaches stitching fiber layers of a penetration resistant composite together (col. 3, lines 1-7). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to utilize any of various methods of adhering the non-woven material to the metal layer of GOERZ including stitching as taught by Li, since stitching provides a reliable means for attaching two pliable materials together.

**FIG. 2**

Price et al

***Summary/Conclusion***

22. Claims 1-15 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin P. Lee whose telephone number is 571-272-8968. The examiner can normally be reached between the hours of 8:30am and 5:00pm on Monday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/B. P. L./

Examiner, Art Unit 3641

/James S. Bergin/

Primary Examiner, Art Unit 3641